

SUPERFUND RESPONSE ACTION PRIORITY PANEL REVIEW FORM**Date Form Completed:** 10/17/2013**General Site Information**

Region:	Region 3	City:	North East	State:	MD
CERCLIS EPA ID:	MDD982364341	CERCLIS Site Name:	Ordnance Products, Inc.		
NPL Status: (P/F/D)	Final (F)	Year Listed to NPL:	1997		

Brief Site Description: *(Site Type, Current and Future Land Use, General Site Contaminant and Media Info, Site Area and Location information.)*

The Ordnance Products, Inc. Superfund Site (the Site) is comprised of a former munitions manufacturing facility located on approximately 95 acres and situated approximately two miles northeast of the Town of North East, Maryland. Today, the property consists of wooded and open areas containing both occupied and abandoned buildings, as well as trailers, junk cars, and debris in the northern part of the Site. Currently, a propane storage facility is in operation at the Site and several other buildings that have recently housed businesses may also be active.

The munitions manufacturing facility operated at the Site from approximately 1957 to 1979 assembling primarily grenade fuses, pyrotechnic signals, and detonators for the United States military. When operations ceased at the Site, waste materials were left above ground and were also presumed to be buried. The wastes included drums of solvents and acids, detonators, and grenade fuses. As a result of the historic operation of the munitions manufacturing facility, soil, groundwater, and surface water were impacted at the Site, primarily by volatile organic compounds (VOCs), perchlorate, and metals. Additionally, Munitions and Explosives of Concern (MEC) were left onsite following the closure of the manufacturing facility.

Two spatially separated groundwater contaminant plumes are present at the Site. Plume 1 is located in the northeastern portion of the Site, extends offsite to four nearby residential wells, and impacts both the shallow overburden and deep bedrock zones. Plume 1 contaminants consist primarily of trichloroethylene (TCE) and tetrachloroethylene (PCE). Plume 2 is located on the southwestern portion of the Site and impacts primarily the shallow overburden zone, although lower contaminant concentrations extend to the deep bedrock zone. Plume 2 contaminants consist primarily of TCE, PCE, and perchlorate.

As indicated above, four residential wells in the vicinity of the Site are impacted by Site-related contaminants. Wellhead treatment systems are currently installed on those residences and are sampled and maintained by EPA.

A vapor intrusion investigation conducted from 2008 through 2010 at six residences in the vicinity of Plume 1 indicated that vapor intrusion presented an unacceptable risk to human health at two residences. Vapor intrusion mitigation systems were installed at both residences in August/September 2012 as a Fund-Lead Removal Action. However, the groundwater in the vicinity of those residences is still impacted by Site-related contaminants. Based on current data, it does not appear that additional residences would become impacted by vapor intrusion in the future.

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General Project Information

Type of Action:	Remedial	Site Charging SSID:	033DRD02
Operable Unit:	OU-2	CERCLIS Action RAT Code:	
Is this the final action for the site that will result in a site construction completion?			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Will implementation of this action result in the Environmental Indicator for Human Exposure being brought under control?			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Response Action Summary

Describe briefly site activities conducted in the past or currently underway:

In 1988, in response to a request from Maryland Department of the Environment, EPA issued a Unilateral Administrative Order (UAO) requiring the former site owner/operator, KDI Corporation (KDI) to characterize onsite and offsite groundwater, surface water, sediment, and soil contamination, address contaminated residential wells, and to remove various hazardous substances and materials in the form of combustibles and drums. Residential well treatment systems were installed at five locations as a result of this investigation in 1994. UAOs were also issued in 1988 and 1994 to the Site owners at the time, Mechanics Valley Trade Center, Inc. (MVTC) and William Frederick, to maintain security at the Site and install and operate a groundwater extraction and treatment system. However, neither MVTC nor Mr. Frederick complied with the UAOs. From 1995 to 1997, KDI designed and constructed a one-well groundwater extraction and treatment system, however, KDI informed EPA in early 1997 that it would no longer be able to continue work at the Site, due to financial difficulties. EPA initiated a Fund-Lead Emergency Removal Action in February 1997 to continue sampling and maintenance of residential well treatment systems and to remove surface water, groundwater, and sludge from five onsite surface water impoundments. Following the completion of the Removal Action, the Site was proposed to the National Priorities List in September 1997 and finalized in December 1997. A Remedial Investigation and Feasibility Study (RI/FS) was conducted from May 1999 through May 2006, followed by the issuance of the Record of Decision (ROD) in September 2006. The Fund-Lead Soil Remedial Action was completed from December 2010 through June 2011 to address soil contamination and MEC. From 2008 through early 2013 EPA conducted supplemental studies, consisting of a Pre-Design Investigation (PDI), Vapor Intrusion Investigation, and Bioremediation Treatability Study (BTS), to evaluate the implementation of the Selected Remedy in the 2006 ROD. As a result of the Vapor Intrusion Investigation, vapor intrusion mitigation systems were installed on two residences in August/September 2012 as a Fund-Lead Removal Action. As a result of the PDI and BTS, a ROD Amendment was issued in September 2013 to modify the Residential Water Supply and Groundwater Restoration components of the Selected Remedy in the 2006 ROD as well as require operation and maintenance of the vapor intrusion mitigation systems.

Specifically identify the discrete activities and site areas to be considered by this panel evaluation:

This Groundwater Remedial Action will address groundwater contamination in Plumes 1 and 2. The groundwater remedy for Plume 1 consists of extraction and treatment of contaminated groundwater, discharge of treated water to surface water, and performance monitoring. The groundwater remedy for Plume 2 consists of in-situ bioremediation via the injection of amendment material using a recirculation system, potential buffering and bioaugmentation of the amendment material, and performance monitoring.

Briefly describe additional work remaining at the site for construction completion after completion of discrete activities being ranked:

The Soil Remedial Action was completed from December 2010 through June 2011. Completion of the Groundwater Remedial Action described herein, consisting of installation of the groundwater extraction and treatment system in Plume 1 and the in-situ bioremediation system in Plume 2, will achieve Construction Completion at the Site. It is anticipated that construction of the Groundwater Remedial Action will last approximately 6 to 7 months.

Response Action Cost

Total Cost of Proposed Response Action:

(\$ amount should represent total funding need for new RA funding from national allowance above and beyond those funds anticipated to be utilized through special accounts or State Superfund Contracts.)

Present Worth: \$2,332,082

Source of Proposed Response Action Cost Amount:

(ROD, 30%, 60%, 90% RD, Contract Bid, USACE estimate, etc...)

100% RD

Breakout of Total Action Cost Planned Annual Need by Fiscal Year:

(If the estimated cost of the response action exceeds \$10 million, please provide multiple funding scenarios for fiscal year needs; general planned annual need scenario, maximum funding scenario, and minimum funding scenario.)

FY14 - Capital Cost: \$839,845

FY15 - LTRA: \$234,122

FY16 - LTRA: \$176,435

FY17 - LTRA: \$199,075

FY18 & FY19 - LTRA: \$158,932/yr

FY20 to FY25 - LTRA: \$144,232/yr

Other information or assumptions associated with cost estimates?

Costs assume groundwater cleanup goals will be reached in Plume 1 in 15 years and in Plume 2 in five years. Groundwater restoration time frames will be refined after construction is completed based on performance monitoring data.

Readiness Criteria

1. Date State Superfund Contract or State Cooperative Agreement will be signed (Month)?

State Superfund Contract (SSC) was signed for the Soil Remedial Action in September 2010. SSC Amendment including the Groundwater Remedial Action Costs is anticipated by December 2013.

2. If Non-Time Critical, is State cost sharing (provide details)?

N/A

3. If Remedial Action, when will Remedial Design be 95% complete?

Remedial Design is complete.

4. When will Region be able to obligate money to the site?

January 2014

5. Estimate when on-site construction activities will begin:

February 2014

6. Has CERCLIS been updated to consistently reflect project cost/readiness information?

Yes.

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Site/Project Name: **Ordnance Products, Inc.**

Criteria #1 - RISKS TO HUMAN POPULATION EXPOSED (Weight Factor = 5)

Describe the exposure scenario(s) driving the risk and remedy. Include risk and exposure information on current/future use, on-site/off-site, media, exposure route, and receptors:

Potential exposures to contaminated groundwater in Plume 1 consist of potential future exposures of industrial and construction workers via direct contact and potential current exposures of offsite adult and child residents via direct contact, ingestion, inhalation of vapors while showering, and inhalation of vapors from vapor intrusion.

Potential exposures to contaminated groundwater in Plume 2 consist of potential current and future exposure of industrial workers via direct contact, potential future exposure of construction workers via direct contact and inhalation of vapors during excavation, and potential future exposure of offsite adult and child residents via direct contact, ingestion, inhalation of vapors while showering, and inhalation of vapors from vapor intrusion.

Estimate the number of people reasonably anticipated to be exposed in the absence of any future EPA action for each medium for the following time frames:

<u>MEDIUM</u>	<u><2yrs</u>	<u><10yrs</u>	<u>>10yrs</u>
GW	10	20	50

Discuss the likelihood that the above exposures will occur:

The Site has historically and is currently utilized as a commercial/industrial facility. Therefore, industrial workers are often present at the site and future construction or excavation associated with onsite businesses is possible. Current construction/industrial workers could be exposed to VOC-contaminated shallow groundwater in both Plumes 1 and 2 during construction or excavation activities.

Four offsite residential wells are currently impacted by Plume 1. Treatment systems have been installed on those wells since 1994 and the systems are currently maintained by EPA. However, the potential for exposure to contaminants exists if the systems should fail or the residents choose to bypass the systems and utilize untreated groundwater. Additionally, the Vapor Intrusion Investigation indicated that vapor intrusion was occurring at two of the impacted residences and resulting in unacceptable risk to human health. Vapor intrusion mitigation systems were installed at those residences in 2012 and are currently maintained by EPA. However, the potential for exposure exists if the systems should fail or are disabled by the residents.

Plume 2 is currently contained entirely within the Site property boundary. Monitoring data indicates that Plume 2 primarily impacts the shallow overburden zone, which is not utilized for water supply in the vicinity of the Site. The low permeability of the shallow overburden also limits potential offsite migration of Plume 2. However, over time, the contamination in Plume 2 is expected to migrate from the shallow overburden zone to the deep bedrock zone, in which the permeability and the potential for offsite migration of Plume 2 groundwater contamination is higher. Residential wells are located offsite downgradient from Plume 2 and those wells may become impacted in the future if Plume 2 is not addressed.

Other Risk/Exposure Information?

Historically, squatters lived on the Site in trailers/mobile homes and were removed by the local authorities in cooperation with EPA, MDE and the current Site operator. However, contaminated groundwater would present a potential direct contact, ingestion, and vapor intrusion risk if squatters returned to the Site and utilized onsite groundwater as a water supply.

Site/Project Name:	Ordnance Products, Inc.
Criteria #2 – SITE/CONTAMINANT STABILITY (Weight Factor = 5)	
Describe the means/likelihood that contamination could impact other areas/media given current containment:	
<p>No additional residences are expected to become impacted by Plume 1. Concentrations in the currently impacted residential wells have decreased since quarterly monitoring began in 2007 and further migration of Plume 1 is limited by Little Northeast Creek.</p> <p>Plume 2 is located entirely within the Site property boundary and primarily impacts the shallow overburden, which is not used for water supply in the vicinity of the Site. The low permeability of the shallow overburden zone limits the migration of Plume 2 and the extent of Plume 2 has not expanded since regular sampling began in 2008. However, the potential does exist for contamination in the shallow overburden zone to migrate to the deep bedrock zone in which the permeability and potential for offsite migration is higher. Residential wells are located offsite downgradient from Plume 2 and may become impacted in the future if Plume 2 is not addressed.</p>	
Are the contaminants contained in engineered structure(s) that currently prevents migration of contaminants? Is this structure sound and likely to maintain its integrity?	
No.	
Are the contaminants in a physical form that limits the potential to migrate from the site? Is this physical condition reversible or permanent?	
No.	
Are there institutional physical controls that currently prevent exposure to contamination? How reliable is it estimated to be?	
No. Institutional controls are required by the 2006 ROD to restrict onsite groundwater use but have not yet been implemented. Implementation of institutional controls may be difficult due to Site ownership concerns.	
Other information on site/contaminant stability?	
No.	

Site/Project Name: **Ordinance Products, Inc.**

Criteria #3 – CONTAMINANT CHARACTERISTICS (Weight Factor = 3)

(Concentration, toxicity, and volume or area contaminated above health based levels)

List Principle Contaminants (Please provide average and high concentrations.):

(Provide upper end concentration (e.g. 95% upper confidence level for the mean, as is used in a risk assessment, or maximum value [assuming it is not a true outlier], along with a measure of how values are distributed {e.g. standard deviation} or a central tendency values [e.g., average].)

<u>Contaminant</u>	<u>*Media</u>	<u>**Concentrations</u>
Trichloroethylene	GW (Plume 1)	ROD Max: 3,800 µg/L, PDI Max: 3,000 µg/L
Tetrachloroethylene	GW (Plume 1)	ROD Max: 5,600 µg/L, PDI Max: 8,200 µg/L
Trichloroethylene	GW (Plume 2)	ROD Max: 1,300 µg/L, PDI Max: 10,000 µg/L
Tetrachloroethylene	GW (Plume 2)	ROD Max: 5,500 µg/L, PDI Max: 46,000 µg/L
Perchlorate	GW (Plume 2)	ROD Max: 4,300 µg/L, PDI Max: 4,870 µg/L

*(*Media: AR – Air, SL – Soil, ST – Sediment, GW – Groundwater, SW – Surface Water)*

*(**Concentrations: Provide concentration measure used in the risk assessment and Record of Decision as the basis for the remedy.)*

Describe the characteristics of the contaminant with regards to its inherent toxicity and the significance of the concentrations and amount of the contaminant to site risk. *(Please include the clean up level of the contaminants discussed.)*

The primary contaminants and risk drivers in Plume 1 are trichloroethylene (TCE) and tetrachloroethylene (PCE) and the primary contaminants and risk drivers in Plume 2 are TCE, PCE, and perchlorate. Additionally, cis-1,2-dichloroethene, trans-1,2-dichloroethene, 1,1,2-trichloroethane, vinyl chloride, benzene, 1,1,2,2-tetrachloroethane, and hexachloroethane were identified as Contaminants of Concern (COCs). Groundwater risks are as follows:

Potential future exposure of industrial worker to groundwater COCs in Plume 1 via direct contact:

-Carcinogenic risk of 1.34×10^{-4}

Potential current and future exposure of industrial worker to groundwater COCs in Plume 2 via direct contact:

-Carcinogenic risk of 4.06×10^{-3}

-Non-carcinogenic HI of 2.56

Potential future exposure of construction worker to groundwater COCs in Plume 1 via direct contact:

-Non-carcinogenic HI of 2.0

Potential future exposure of construction worker to groundwater COCs in Plume 2 via direct contact and inhalation of vapors during excavation:

-Carcinogenic risk of 6.60×10^{-4}

-Non-carcinogenic HI of 10.5

Potential current exposure of offsite adult and child resident to groundwater COCs in Plume 1 via direct contact, ingestion, inhalation of vapors while showering, and inhalation of vapors from vapor intrusion :

-Carcinogenic risk of 2.97×10^{-1}

-Non-carcinogenic HI of 1290

Potential future exposure of offsite adult and child resident to groundwater COCs in Plume 2 via direct contact, ingestion, inhalation of vapors while showering, and inhalation of vapors from vapor intrusion:

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-Carcinogenic risk of 6.71×10^{-1}

-Non-carcinogenic HI of 315

Federal Maximum Contaminant Levels (MCLs) were identified as cleanup goals for all COCs for which MCLs exist. MDE Groundwater Cleanup Standards were identified as cleanup goals for COCs for which there is no MCL, with the exception of perchlorate. The EPA Drinking Water Equivalent Level (DWEL) was identified as the cleanup goal for perchlorate. Additionally, once cleanup goals are achieved for all Site COCs, a risk assessment shall be performed to confirm that exposure to groundwater would result in a cumulative excess carcinogenic risk of less than or equal to 10^{-6} and a cumulative excess non-carcinogenic hazard index (HI) of less than or equal to 1 throughout Plumes 1 and 2.

Describe any additional information on contaminant concentrations which could provide a better context for the distribution, amount, and/or extent of site contamination. *(e.g. frequency of detection/outlier concentrations, exposure point concentrations, maximum or average concentration values, etc.....)*

The Bioremediation Treatability Study performed in Plume 2 significantly reduced the contaminant concentrations from the maximum concentrations reported above, primarily for TCE, PCE, and perchlorate. Additional in-situ bioremediation within Plume 2 in a timely manner is expected to reduce contaminant concentrations to meet MCLs.

Other information on contaminant characteristics?

N/A

Site/Project Name:	Ordnance Products, Inc.
Criteria #4 – THREAT TO SIGNIFICANT ENVIRONMENT (Weight Factor = 3) <i>(Endangered species or their critical habitats, sensitive environmental areas.)</i>	
Describe any observed or predicted adverse impacts on ecological receptors including their ecological significance, the likelihood of impacts occurring, and the estimated size of impacted area:	
No ecological risk due to groundwater contamination was identified at the Site.	
Would natural recovery occur if no action was taken? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, estimate how long this would take.	
N/A	
Other information on threat to significant environment?	
N/A	

Site/Project Name:	Ordnance Products, Inc.
Criteria #5 – PROGRAMMATIC CONSIDERATIONS (Weight Factor = 4) <i>(Innovative technologies, state/community acceptance, environmental justice, redevelopment, construction completion, economic redevelopment.)</i>	
Describe the degree to which the community accepts the response action.	
The community is accepting of the response action. No comments on the Proposed Remedial Action Plan (PRAP) for the initial ROD were received during the 30-day comment period in August/September 2006. Additionally, no comments on the PRAP for the ROD Amendment were received during the 30-day public comment period in July/August 2013	
Describe the degree to which the State accepts the response action.	
The state of Maryland is accepting of the response action and concurred with the Selected Remedy in the 2006 ROD and Remedy Modification in the 2013 ROD Amendment.	
Describe other programmatic considerations, e.g.; natural resource damage claim pending, Brownfields site, use of innovative technology, construction completion, economic redevelopment, environmental justice, etc...	
Completion of the Groundwater Remedial Action will result in Construction Completion for the Site. Based on the current project schedule, if funding is received by January 2014, due to the short construction phases of the remedies in Plumes 1 and 2, Construction Completion could be achieved by September 30, 2014.	